

Robin Clark Nesbitt

Dr. sc. hum.

The influence of distance and quality of care on facility use and perinatal mortality in Brong Ahafo, Ghana

Fach: Public Health

Doktormutter: Priv.-Doz. Dr. Dr. med. Sabine Gabrysch

The reduction of maternal and perinatal mortality worldwide is an internationally recognized development goal and a global imperative. Maternal and perinatal mortality have been reduced to (relatively) rare events in high-income countries, demonstrating that lives can be saved with current medical knowledge. Indeed, the leading causes of maternal and perinatal mortality are highly amenable to intervention; uterotonics for hemorrhage, antibiotics for sepsis, and caesarean section for obstructed labour, among others. The staggering numbers of deaths in low- and middle-income countries reflect a lack of access to quality delivery care.

Obstetric complications during labour and delivery are responsible for a large proportion of maternal and perinatal deaths. Skilled health professionals, such as midwives and doctors, can prevent, identify and manage complications to save lives. Delivery with a health professional in an ‘enabling’ environment, termed ‘skilled attendance,’ was chosen as an indicator for progress towards the reduction of maternal mortality as a Millennium Development Goal and recommended for all women by the World Health Organization. In most contexts, skilled attendance means delivery in a health facility.

Identifying determinants of facility use for delivery in low- and middle- income countries is important to inform strategies to increase facility delivery and reduce the burden of mortality. This dissertation provides a thorough investigation of two important supply side determinants, geographic access to care and quality of care. The study site was in Ghana, a lower-middle income country in sub-Saharan Africa with high maternal and perinatal mortality. Using health facility data and population surveillance data from a community-based trial in seven districts in the Brong Ahafo region, this dissertation presents an investigation into the influence of geographic access and quality of care on facility delivery and perinatal mortality.

In the first section, a novel quality of care framework is presented, comprising essential interventions along the continuum of maternal and neonatal care in four dimensions of quality. This framework was applied to a health facility assessment of all facilities in the study area to estimate the availability and “effective” coverage of skilled attendance, i.e. the percentage of women delivering in facilities of high quality on all dimensions of care evaluated. The second section presents a comprehensive comparison of different measures of travel impedance,

including straight-line distance, road network distance and raster-based travel time estimates using a geographic information system. In the third section, the results from the health facility assessment and the access measures are linked to the surveillance data. Multi-level logistic regression models are used to assess the influence of distance and quality of care on place of delivery and perinatal mortality.

Quality of care in the study area was low, many facilities were lacking essential drugs and equipment and sufficiently trained staff. Eight facilities offered comprehensive emergency obstetric care (EmOC), and three offered comprehensive emergency newborn care. Overall nearly 70% of women in the area delivered in a health facility in 2009, but only 18% of these deliveries were in facilities with high quality on all dimensions of care evaluated, revealing a wide quality gap and huge missed opportunity. Results of the geographic analysis provided evidence that straight-line distance from village centroid was a sufficient measure of geographic access to delivery care in the study area.

The intention to seek delivery care decreased with distance and was a clear determinant of facility use. There was a steep decline in facility delivery with distance in rural women: Modelled probabilities of facility use were over 80% among women living within 1 km of a facility offering EmOC, and less than 20% among women whose closest facility was 25 km away and offered only substandard care.

Perinatal mortality was higher among facility deliveries than among home deliveries, consistent with an adverse selection of complicated cases into facilities. While better geographic access to care increased the use of facilities for delivery, it did not translate into a decrease in perinatal mortality. In fact, there was evidence that farther distance to care was even associated with lower perinatal mortality. Substandard quality of care in the closest facility decreased use of facilities for delivery and increased perinatal mortality.

Areas for further research identified in this thesis include the reasons for lack of intention to seek delivery care, ways to overcome distance as a barrier to use and importantly, whether or not delivery in small non-EmOC facilities can actually save lives. The clear policy implication of these results is an urgent need to improve the low quality of delivery care in facilities. Underlying the promotion of skilled attendance as a pillar of the safe motherhood movement is the assumption that increased facility use for delivery should decrease maternal and perinatal mortality. The results presented here provide some evidence that this assumption does not necessarily hold if the quality care in facilities is substandard, which again underscores the importance of improving the quality of care.